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09/674,620	11/03/2000	Hidekuni Moriya	Q60962	1567

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EXAMINER
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ROSARIO, DENNIS

ART UNIT	PAPER NUMBER
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2621

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/674,620

Applicant(s)

MORIYA ET AL.

Examiner

Dennis Rosario

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on RCE 8/10/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 November 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

1. The amendment was received on August 10, 2005. Claims 1-14 are pending.

### ***Response to Arguments***

2. Applicant's arguments, see page 10, lines 9-11, filed 8/10/2005, with respect to the rejection(s) of claim(s) 1, 13 and 14 under 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art of Song (US Patent 4,783,840) and Kuwata et al. (US Patent 6,392,759 B1).

### ***Drawings***

3. Even though the drawings were previously approved, upon further consideration figures 1, 2 and 12C are objected.

Figure 1 has label: "AL1" which ought to be amended to "A4".

Figure 2 ought to include a numeral 10 that points in general to the system of fig.

- 2.

Fig. 12: "50" ought to be amended to " – 50".

### ***Claim Objections***

4. Due to the amendment, the objection to claims 4 and 7 is withdrawn.

5. The following quotations of 37 CFR § 1.75(a) is the basis of objection:

(a) The specification must conclude with a claim particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention or discovery.

6. Claim 1, 13 and 14 is/are objected to under 37 CFR § 1.75(a) as failing to particularly point out and distinctly claim the subject matter which the applicant regards as his invention or discovery.

Claim 1, line 15: "each of said differences" has no antecedent basis. How is the difference created? According to claim 1, the distribution of differences is created from the picture element characteristic determining unit. Should the picture element characteristic determining unit also create the claimed each of said differences, too?

Claims 13 and 14 are objected for the same reasons as claim 1.

7. Claim 14 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 14 is drawn to functional descriptive material NOT claimed as residing on a computer readable medium. MPEP 2106.IV.B.1(a) (Functional Descriptive Material) states:

"Data structures not claimed as embodied in a computer-readable medium are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer."

"Such claimed data structures do not define any structural or functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure's functionality to be realized."

Claim 14, while defining a medium (whatever is claimed; e.g., a computer program, an algorithm, a medium, a program providing medium, a memory, etc.), does not define a "computer-readable medium" and is thus non-statutory for that reasons. A medium (whatever is claimed; e.g., a computer program, an algorithm, a medium, a program providing medium, a memory, etc.) can range from paper on which the

program is written, to a program simply contemplated and memorized by a person. The examiner suggests amending the claim to embody the program on "computer-readable medium" in order to make the claim statutory.

"In contrast, a claimed computer-readable medium encoded with the data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory." - MPEP 2106.IV.B.1(a)

### ***Specification***

8. Page 32, line 7: "smoothing" ought to be amended to "sharpening".

Page 32, line 9: "sharpening" ought to be amended to "smoothing".

Currently, the specification on page 32, lines 7-9 teaches smoothing edges and on page 32, lines 9-11 teaches sharpening moiré wherein both actions are contradictory to the teachings of the rest of specification. The rest of the specification teaches sharpening of edges and smoothing of moiré.

Page 34, line 7: "sensor 24" ought to be amended to "sensor 23".

### ***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Song (US Patent 4,783,840 A).

Regarding claim 1, Song discloses:

a) an image data acquisition unit ("cameras" in col. 1, line 15) which acquires said image data (Fig. 1, labels "A" and "B".);

b) a picture element characteristic determining unit (Fig. 1, numerals 12 and 14.) which

b1) creates a distribution of differences (Fig. 3, num. 28 creates a distribution of differences or "subgroups...in accordance with...differences" in col. 4, lines 10-12 using figure 2 where figures 4-11 shows a plurality of sub-groupings. Note that Song does not use the word distribution, but in an interpretation of the claimed distribution, a given space of values as shown in fig. 2 is "labeled" in col. 4, lines 22 and 28 for each value of the space based on criteria as mentioned in col. 4, lines 9-22 of "differences" in col. 4, lines 11,12. Thus, each label is distributed to each value of the space of figure 2 based on the differences to form the above mentioned subgroups where each subgroup is labeled or in an opposite interpretation, each value of fig. 2 meets any one of the above mentioned criteria and is distributed or labeled to one of a plurality of labels that describe one of a plurality of subgroups.) of tone levels ("color" in col. 9, line 49) between object picture elements (fig. 2, label: X(0)), which are the picture elements of the image data acquired by said image data acquisition unit, and neighboring picture elements (Fig. 2, labels X(1)-X(8)) in a prescribed range (3 X 3) around the object picture elements,

b2) determines the characteristic (Fig. 14: PATTERN RECOGNITION determines the characteristic or "edge line" in col. 4, line 57 or "noise" in col. 4, line 68.) of each object picture element (Fig. 14 determines the characteristic or "edge line" in col. 4, line 57 or "noise" in col. 4, line 68 of each object picture element as shown in fig. 2, label: X(0).) by comparing (Fig. 14 determines the characteristic or "edge line" in col. 4, line 57 or "noise" in col. 4, line 68 of each object picture element as shown in fig. 2, label: X(0) by comparing or recognizing...) the distribution of differences with a model distribution (Fig. 14 determines the characteristic or "edge line" in col. 4, line 57 or "noise" in col. 4, line 68 of each object picture element as shown in fig. 2, label: X(0) by comparing or recognizing the distribution of differences formed from fig. 2 with a model distribution, figures 4-11. For example, if figure 2 is sub-grouped, as mentioned in fig. 3, num. 28, then that sub-grouped is recognized by comparing the sub-group with the sub-groups of figs. 4-11 to determine a match.); and

c) an image data retouching unit (Fig. 1, num. 18) which executes prescribed image processing according to the characteristic of picture elements determined by said picture element characteristic determining unit (Fig. 1,numerals 12,14 via 16.),

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b3) wherein said distribution of differences (Fig. 3, num. 28 creates a distribution of differences or "subgroups...in accordance with... differences" in col. 4, lines 10-12 using figure 2 where figures 4-11 shows a plurality of sub-groupings.) is created by placing (Fig. 3, num. 28 creates a distribution of differences or sub-grouping of differences which in turn is created by "arrang[ing]" in col. 3, line 50) each of said differences (Fig. 3, num. 28 creates a distribution of differences or sub-grouping of differences which in turn is created by "arrang[ing]" in col. 3, line 50 each of said "differences" in col. 3, lines 52,53.), respectively, in one of a plurality of predetermined categories (Fig. 3, num. 28 creates a distribution of differences or sub-grouping of differences which in turn is created by "arrang[ing]" in col. 3, line 50 each of said "differences" in col. 3, lines 52,53, respectively, in one of a plurality of predetermined categories or ranks via "rank ordering" in col. 3, line 56. Thus, each difference is ranked in an order from 1 to 8 where 1 corresponds to the smallest difference value and 8 corresponds to the largest difference value as indicated by the equations on the bottom of column 3 or in another interpretation of b3:



b3') wherein said distribution of differences is created (Fig. 3, num. 28 creates a distribution of differences or "subgroups...in accordance with...differences" in col. 4, lines 10-12 using figure 2 where figures 4-11 shows a plurality of sub-groupings.) by placing ("label[ing]" in col. 4, lines 22 and 28) each of said differences ("differences" in col. 3, line 67 which are shown in two equations on the bottom of column 3 as "Z" and two equations at the middle of column 4.), respectively, in one of a plurality of predetermined categories ("w" or "u" where "w" refers to a "first subgroup" in col. 4, line 22 and "u" refers to a "second subgroup" in col. 4, line 28.).

Claim 2 is rejected the same as claim 1 paragraph b3 in terms of rank ordering. Thus, argument similar to that presented above for claim 1b3) is equally applicable to claim 2.

Regarding claim 3, Song discloses an image data retouching apparatus, as claimed in Claim 1, wherein said picture element characteristic determining unit utilizes for the determination the positive or negative polarization (based on "values...[that] are ...greater than or less than [another] value...(col. 7, lines 64-66).") of said distribution.

Regarding claim 4, Song discloses an image data retouching apparatus, as claimed in Claim 2, wherein said picture element characteristic determining unit determines picture elements to edge picture elements (Fig. 14 determines the characteristic or "edge line" in col. 4, line 57 or "noise" in col. 4, line 68 of each object picture element as shown in fig. 2, label: X(0).) :

a) if the distribution in said range of greater differences (see claim 1 paragraph b3 in terms or rank ordering and corresponds to the equation "w" of column 8 where "w" represents the "first subgroup (w)" in col. 8, line 15.) is dominant (as shown in fig .11 by the shaded portions and mentioned in terms of "the first subgroup (w)" in col. 6, line 62.) and

b) if said distribution (see claim 1 paragraph b3 in terms or rank ordering) is polarized positively or negatively ("absolute value" in col. 3, line 56 considers positive or negative values of the distribution.).

Regarding claim 5 see col. 5, line 40.

Regarding claim 6, Song discloses an image data retouching apparatus, as claimed in Claim 5, wherein said sharpening forms ("image sharpening" in col. 7, line 26) a matrix ("as shown in FIG. 2." in col. 7, line 25.) having prescribed number of picture elements (eight or "X(1)-X(8)" in col. 7, line 25 of fig. 2.) centering on an object picture element ("X(0)" in col. 7, line 23 of fig. 2) and is executed by a sharpening filter (Fig. 1,num. 18) wherein a prescribed coefficient (Fig. 16 outputs a coefficient) to emphasize the object picture element is set in each picture element position in the matrix (based on "selectively weighting...the center pixel value X(0)...and the...group...X(1)-X(8) as shown in FIG. 2 (col. 7, lines 22-25).").

Regarding claim 7, Song discloses an image data retouching apparatus, as claimed in Claim 2, wherein said picture element characteristic determining unit determines picture elements to be moiré picture elements (Fig. 14: PATTERN RECOGNITION determines picture elements to be moiré picture elements or "noise" in col. 4, line 68.):

a) if the distribution in said range of smaller differences (see claim 1 paragraph b3 in terms or rank ordering and corresponds to the equation "u" of column 8 where "u" represents the "second subgroup" in col. 4, line 28.) is dominant (as shown in fig. 4 by the white portions and mentioned in col. 4, lines 59,60) and

b) if said distribution (see claim 1 paragraph b3 in terms or rank ordering) is polarized positively or negatively ("absolute value" in col. 3, line 56 considers positive or negative values of the distribution.).

Regarding claim 8, Song discloses an image data retouching apparatus, as claimed in Claim 1, wherein said data retouching unit executes smoothing ("nonweighted average" in col. 7, line 50. Note that a nonweighted average is an average of all values in fig. 2 where no weight is applied that corresponds to a smoothing of values.) of images if said object picture elements are determined to be moire picture elements.

Claim 9 is rejected the same as claims 6 and 8. Thus, argument similar to that presented above for claims 6 and 8 are equally applicable to claim 9.

11. Claims 1 and 11-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Kuwata et al. (US Patent 6,392,759 B1).

Regarding claim 1, Kuwata et al. discloses:

- a) an image data acquisition unit (Fig. 1, num. 20, label: IMAGE-DATA OBTAINING UNIT) which acquires said image data;
- b) a picture element characteristic determining unit (Fig. 1, num. 20, label: SUMMATION PROCESSING UNIT) which
  - b1) creates a distribution of differences (Fig. 13 is a "histogram" in col. 11, line 8 of differences or edge amounts as shown by the horizontal-axis. Note that edge amounts are differences as mentioned in col. 10, lines 1-3.) of tone levels (as shown in equation 1: RGB.) between object picture elements( $f(x,y)$ ), which are the picture elements of the image data acquired by said image data acquisition unit, and neighboring picture elements in a prescribed range (3 X 3) around the object picture elements (See figure 9 and 10),

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b2) determines the characteristic (or the magnitude of the edge amount) of each object picture element by comparing the distribution of differences with a model distribution (as shown in fig. 13, where the horizontal axis is able to distribute the edge amounts on either side of a vertical dashed line.); and

c) an image data retouching unit (Fig. 1, num. 20, label: EDGE ENHANCEMENT UNIT) which executes prescribed image processing according to the characteristic of picture elements determined by said picture element characteristic determining unit (Fig. 1, num. 20, label: SUMMATION PROCESSING UNIT),

b3) wherein said distribution of differences (Fig. 13 is a "histogram" in col. 11, line 8 of differences or edge amounts as shown by the horizontal-axis. Note that edge amounts are differences as mentioned in col. 10, lines 1-3.) of tone levels (as shown in equation 1: RGB) is created by placing each of said differences (or edge amounts), respectively, in one of a plurality of predetermined categories (of either PIXELS SUBJECTED TO SUMMATION or inherently, pixels not subjected to summation or as shown in fig. 17, step S310: PIXEL TO BE SUBJECTED TO EDGE ENHANCEMENT based on the edge amount and a vertical dashed line as shown in figs 15(a)-15(c).

Regarding claim 11, Kuwata et al. discloses an image data retouching apparatus, as claimed in Claim 1, wherein:

a) in retouching (Fig. 1, num. 20, label: EDGE ENHANCEMENT UNIT) the image data of the picture elements, an image data attribute specifying unit ("color conversion table" in col. 10, line 18) for acquiring specification of the attribute of image data ("color conversion table" in col. 10, line 18 acquires specification of the attribute of image data or "Y" as shown in equation 1 via a conversion using the color conversion table.) to be handled is caused to execute the function thereof (Fig. 1, num. 20, label: EDGE ENHANCEMENT UNIT), and

b) said image data retouching unit (Fig. 1, num. 20, label: EDGE ENHANCEMENT UNIT) is caused to execute the function thereof (Fig. 1, num. 20, label: EDGE ENHANCEMENT UNIT) on the basis of image data having the attribute ("color conversion table" in col. 10, line 18 acquires specification of the attribute of image data or "Y" as shown in equation 1 via a conversion using the color conversion table or alternatively the "G component having the greatest contributing value to the luminance is regarded as the luminance" in col. 14, lines 51-54.) acquired by said image data attribute specifying unit.

Regarding claim 12, Kuwata et al. discloses an image data retouching apparatus, as claimed in Claim 11, wherein said image data attribute specifying unit ("color conversion table" in col. 10, line 18):

a) specifies luminance signals as the attribute (The "G component having the greatest contributing value to the luminance is regarded as the luminance" in col. 14, lines 51-54.) when high-speed image data retouching is desired ("processing time can be reduced" in col. 14, line 41) and

b) specifies element color signals (As shown in equation 11) constituting an image as the attribute when high-quality image data retouching is desired ("provides improved image quality" in col. 14, line 43.).

Claim 13 is rejected the same as claim 1. Thus, argument similar to that presented above for claim 1 of an apparatus claim is equally applicable to claim 13 of a method claim.

Claim 14 is rejected the same as claim 1. Thus, argument similar to that presented above for claim 1 is equally applicable to claim 14 except for the additional limitation of a medium which is disclosed in Kuwata et al. as shown in fig. 2, num. 25.).

### ***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Song (US Patent 4,783,840 A) in view of Kuwata et al. (US Patent 6,392,759 B1).

Regarding claim 10, Song teaches red, green or blue of a color imaging system or luminance image data in col. 9, lines 47-51 can be "readily understood" in col. 9, line 47. Thus, Song suggests that the red, green or blue or luminance image data are readily understood to one of ordinary skill in the art to create colors with a color imaging system. However, Song does not provide any details of a color imaging system.

However, Kuwata et al. does teach a color imaging system as taught by Song as teaches claim 10 of an image data retouching apparatus(fig. 1, label: EDGE ENHANCEMENT UNIT), wherein said image data retouching unit obtains a retouching value (equation 8 in column 12: Eenhance) for the luminance value (Y' of equation 8) of said image data, and adds (Equation 11 of column 14 via equations 10 and 8) the retouching value to the tone values (R G B of equation 11) of element colors to retouch the image data.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Song's teaching of RGB and luminance with Kuwata et al's teaching, because Kuwata et al. supplies details of a color imaging system in terms of RGB and luminance to the teaching of Song's color imaging system.



**Conclusion**

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Rosario whose telephone number is (571) 272-7397. The examiner can normally be reached on 6-3.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (571) 272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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